

March 6, 2014

425 Project DD Structural Quantities Narrative

The intent of this narrative is to supplement the structural information provided in the design development drawings dated 3/1/14 for the purpose of pricing. The structure has not been fully designed at this time, and the quantities presented in this document should be taken as preliminary (DD level) in nature. The contractor should use judgment to modify these quantities as necessary for conditions that differ from typical conditions.

Structure	Quantity	Comment
Drilled Piers	Shown on plans	Refer to schedule and details on S401
Footings	Shown on plans	Refer to drawings DD1, DD2 and DD3 (attached)
Grade Beams	Shown on plans	Refer to schedule on drawing DD4 (attached)
Mat Foundations		
Stair 2 Core Mat Foundation	175 pcy	Refer to plan for location – See Note 5 below
Elevator Core Mat Foundation	175 pcy	Refer to plan for location – See Note 5 below
NE Stair 4 Wall Mat Foundation	175 pcy	Refer to plan for location – See Note 5 below
Foundation Walls		
East/West Foundation Walls (1/S501)	20" wall, 12 psf 2'6"x12'0", 80 plf	Concrete wall, reinforcing Concrete footing, reinforcing
North Foundation Wall (2/S501)	2 cy/ft 250 plf	Concrete wall and footing reinforcing
North Foundation Wall (3/S501)	2.25 cy/ft 300 plf	Concrete wall and footing reinforcing
North Foundation Wall (4/S501)	3.5 cy/ft 360 plf	Concrete wall and footing reinforcing
North Foundation Wall (5/S501)	2.25 cy/ft 300 plf	Concrete wall and footing reinforcing
PT-Beams		
Level 2 (Mild)	24x30, 35 plf 24x36, 40 plf	Typical Mech/Loading Dock (approx. grids 8, 14, C & D)
Level 2 (PT)	756 kip 864 kip	Typical Mech/Loading Dock (approx. grids 8, 14, C & D)
Levels 3-6 (Mild) and parking ramp areas on Level 2.	24x24 18x24, 30 plf 25 plf	Typical interior Grids 1, 6.9, 7, 14
Levels 3-6 (PT) and parking ramp areas on Level 2.	486 kips 216 kips 324 kips	Typical interior Grids 1 and 14 Grids 6.9 and 7
Level 7 (Mild)	24x30, 35 plf 24x36, 40 plf	Typical Patio (Grids 1, 4, A & B)

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Page 2 of 3

	24x30, 30 plf	Office area (Grids 5, 14, C & D)
Level 7 (PT)	756 kip 756 kip 540 kip	Typical Patio (Grids 1, 4, A & B) Office area (Grids 5, 14, C & D)
Level 3 Transfer Girder (Mild)	32x48, 60 plf	
Level 3 Transfer Girder (PT)	648 kip	Stage stressing not required
PT-Slabs		
Level 2 (Mild)	9", 1.2 psf 10", 1.3 psf	Typical Mech/Loading Dock (approx. grids 8, 14, C & D) – See note 4 below
Level 2 (PT)	18 k/ft 28 k/ft 20 k/ft	Typical Long End Span (Grids 6, 8) Mech/Loading Dock (approx. grids 8, 14, C & D)
Levels 3-6 (Mild) and parking ramp areas on Level 2.	7.5", 1.0 psf 1.1 psf	Typ Between Grids 6 and 8 (long end span)
Levels 3-6 (PT)	18 k/ft 25 k/ft	Typ Between Grids 6 and 8
Level 7 (Mild)	9", 1.2 psf 7.5", 1.0 psf	Typical Office area (approx. bound by grids 5, 14, C & D) – See note 4 below
Level 7 (PT)	18 k/ft 28 k/ft 20 k/ft 32 k/ft 18 k/ft	Typical Long End Span (Grids 4, 5, A & B) Patio (Grids 1, 3, A & B) Patio End Span (Grids 3, 4, A & B) Office area (Grids 5, 14, C & D)
All Levels (PT)	7.5 k/ft 9 k/ft	Transverse Slab Tendons, Typ. Transverse Slab Tendons, 9" and 10" Slabs
Concrete Columns		
Perimeter Columns	See plan and schedule for size, 2-2.5% Reinforcing	Does not include lap splices, reinforcing may vary depending on precast attachment
Interior Columns	See plan and schedule for size, 1.5% Reinforcing	Does not include lap splices. Typical interior column below office tower is 30"x30".
Concrete Shear Walls		
1 st and 2 nd Story	12" Thick, 9 psf	Concrete wall, reinforcing
3 rd and 4 th Story	12" Thick, 6 psf	Concrete wall, reinforcing
5 th and 6 th Story	12" Thick, 4 psf	Concrete wall, reinforcing
Steel Gravity Columns		
7 th and 8 th Story	W12, 106 - 120 plf	Typ – See note 6
9 th and 10 th Story	W12, 79 - 96 plf	Typ – See note 6

11 th and Penthouse	W12, 65 - 79 plf	Typ – See note 6
Steel Gravity Beams	Shown on plans	
Steel Braced Frames		
7 th and 8 th Story	W12, 170 - 210 plf W12, 65 – 79 plf W24 – W27, 76 – 114 plf	Column – See note 7 Braces Beams
9 th and 10 th Story	W12, 120 - 170 plf W12, 53 – 65 plf W24 – W27, 76 – 114 plf	Column – See note 7 Braces Beams
11 th and Penthouse	W12, 79 - 96 plf W12, 40 – 58 plf W24 – W27, 76 – 114 plf	Column – See note 7 Braces Beams

Notes:

- 1) All reinforcing quantities have been increase for lap splices, unless otherwise noted.
- 2) Reinforcing quantities do not account for miscellaneous reinforcing such as trim bars around openings and slab edges, support bars, PT backer bars, etc.
- 3) PT slab and beam design presumed a construction sequence with 2 stories of reshores (3 levels supporting poured slab) for Levels 5 and 6 and 3 stories of reshores (4 levels supporting) for Level 7. Concrete beam shore towers can be supported on slab of first supporting level with reshores located below beam on centerline. No construction materials or significant construction activities (such as forklift) should occur on supporting levels between pouring, stressing, and stripping the forms from the poured level. Concrete strength at slab and beams shall reach 4,500 psi min prior to supporting shoring load.
- 4) Slab thickness in this narrative to supersede that shown on DD plans.
- 5) Mat foundations are assumed 48" thick with #10 at 12" T&B EW. Quantity includes a 30% increase for lap splices, but does not account for standard ACI hooks at each end. Overturning is expected at each mat foundation location. See drawing DD5 (attached) for possible rock anchor detail to help resist overturning.
- 6) Steel column quantities do not account for splices, base plates, connections, etc. Column quantities do not account for eccentric precast connections away from floor levels.
- 7) Braced frame quantities do not account for splices, base plates, connections, etc. Braced frame columns to be embedded in concrete structure 1 story per drawings.

CONCRETE FOOTING SCHEDULE				
MARK	LENGTH	WIDTH	THICKNESS	REINFORCING BOTTOM BARS, EACH WAY UNO
F1	4'-0"	4'-0"	2'-0"	5 - #9 W/ 90 DEG HOOK EACH END
F2	5'-0"	5'-0"	3'-0"	6 - #9 W/ 90 DEG HOOK EACH END
F3	7'-0"	4'-0"	3'-0"	5 - #9 W/ 90 DEG HOOK EACH END LONG WAY 8 - #9 W/ 90 DEG HOOK EACH END SHORT WAY

1

CONCRETE FOOTING SCHEDULE

1 1/2" = 1'-0"

1/S402

425 PROJECT - Maurices Headquarters & City of Duluth Parking Ramp
425 West Superior Street, Duluth, MN 55802

REVISIONS

#	REV	DATE

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501 LAKE AVENUE SOUTH
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DULUTH, MN 55802

SEE STRUCTURE.

Comm. No.
13.484.0

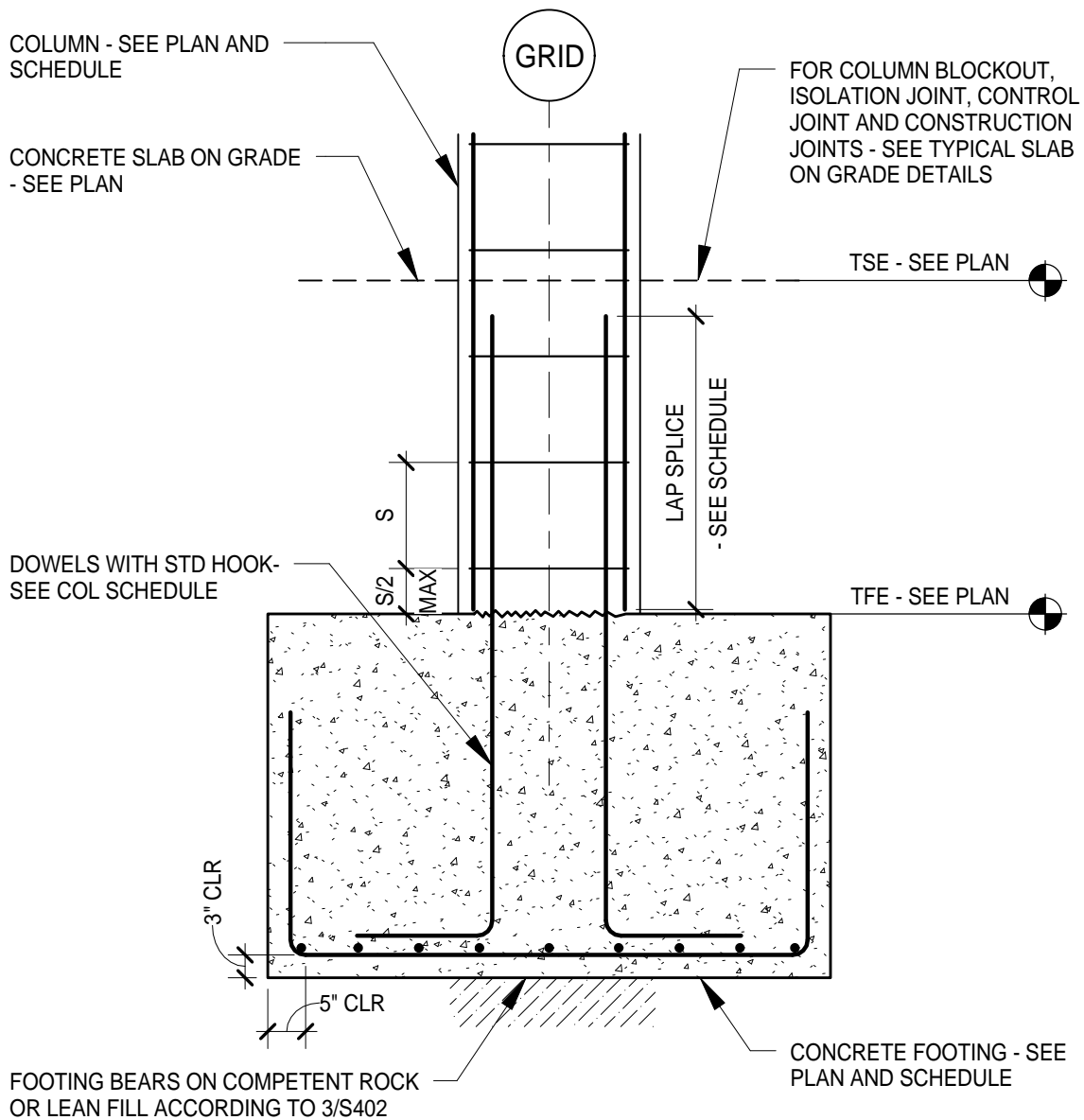
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DD1



2 TYPICAL COLUMN FOOTING DETAIL

1/2" = 1'-0"

2/S402

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DD2

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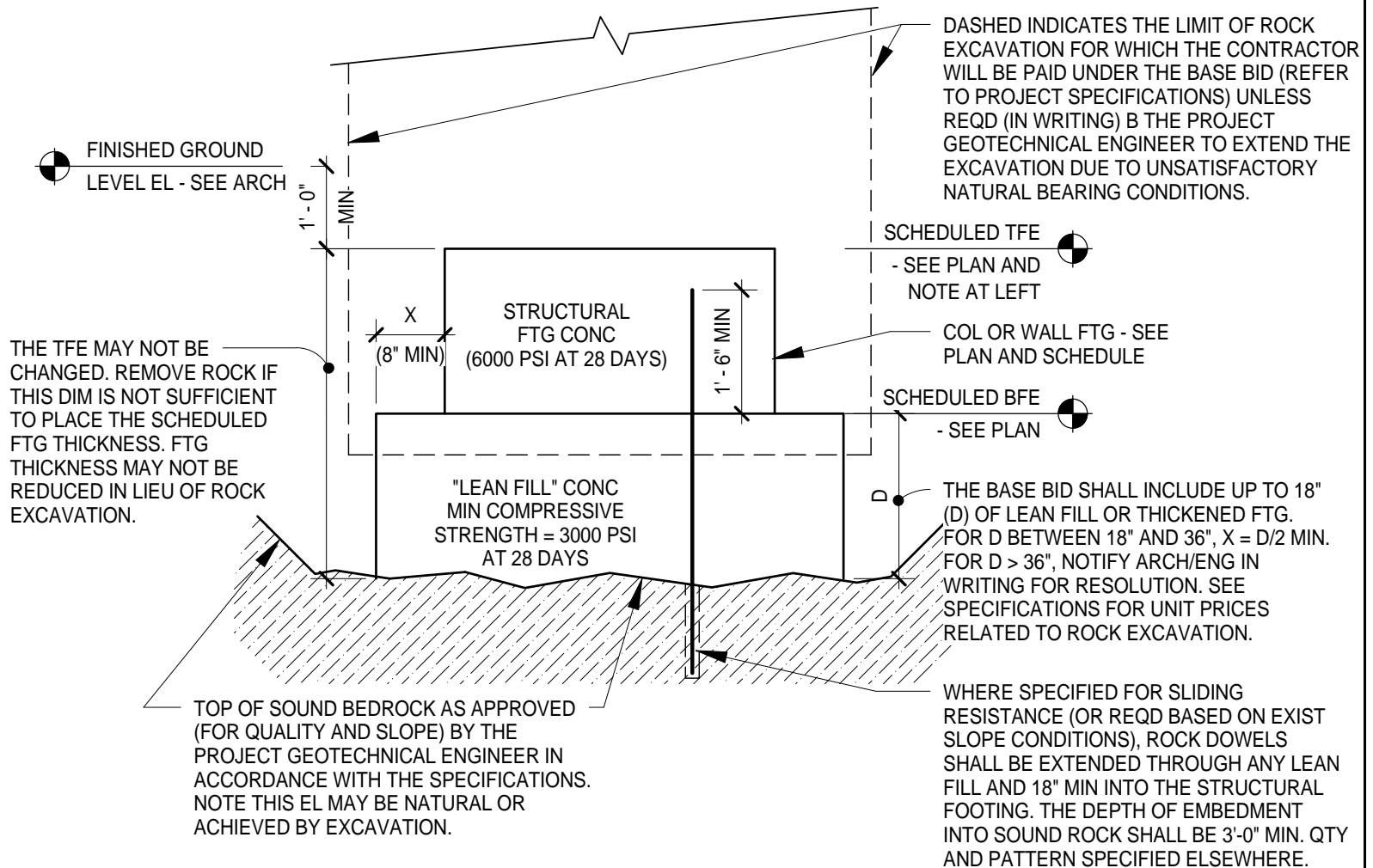
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DD3

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NOTE:
THE SCHEDULED TFE MAY NOT BE ARBITRARILY LOWERED TO ACCOMMODATE ACTUAL BEDROCK ELEVATIONS THAT ARE LOWER THAN ASSUMED. HOWEVER, FTGS MAY BE THICKENED (UP TO 18" WITHOUT LATERAL OVERSIZE) OR LEAN FILL PLACED AS NOTED BELOW TO REACH SOUND BEDROCK.



3

SCHEMATIC DETAIL AT FOUNDATION

1/2" = 1'-0"

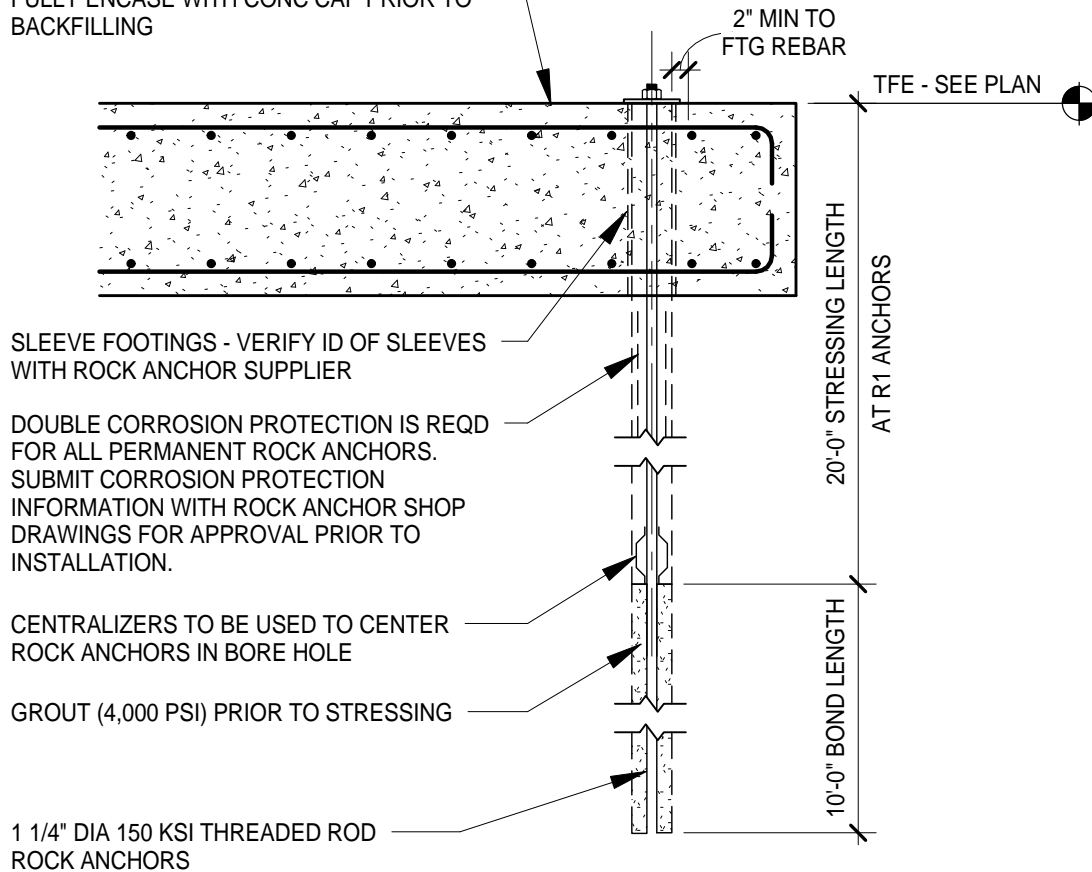
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DD4

1/S404

ANCHOR PLATE AND NUT BY ANCHOR SUPPLIER. PAINT WITH BITUMINOUS PAINT, FULLY ENCASE WITH CONC CAP PRIOR TO BACKFILLING



SLEEVE FOOTINGS - VERIFY ID OF SLEEVES WITH ROCK ANCHOR SUPPLIER

DOUBLE CORROSION PROTECTION IS REQD FOR ALL PERMANENT ROCK ANCHORS. SUBMIT CORROSION PROTECTION INFORMATION WITH ROCK ANCHOR SHOP DRAWINGS FOR APPROVAL PRIOR TO INSTALLATION.

CENTRALIZERS TO BE USED TO CENTER ROCK ANCHORS IN BORE HOLE

GROUT (4,000 PSI) PRIOR TO STRESSING

1 1/4" DIA 150 KSI THREADED ROD ROCK ANCHORS

4

TYPICAL DETAIL AT ROCK ANCHORS

1/2" = 1'-0"

4/S402

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